



UNITED STATES PATENT AND TRADEMARK OFFICE

TH

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,808	03/26/2004	Boris A. Maslov	76897-018CIP6	7953
61263	7590	12/14/2007		
PROSKAUER ROSE LLP 1001 PENNSYLVANIA AVE, N.W., SUITE 400 SOUTH WASHINGTON, DC 20004			EXAMINER COLON SANTANA, EDUARDO	
			ART UNIT 2837	PAPER NUMBER
			MAIL DATE 12/14/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,808	MASLOV ET AL.	
	Examiner	Art Unit	
	Eduardo Colon Santana	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/29/2007</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/29/2007 has been entered.

2. Applicant's arguments with respect to the claims have been considered but they are still not persuasive. See Response to Arguments below.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 10/29/2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable and obvious over Schmitz et al. U.S. Patent No. 6,622,804 in view of Heidelberg et al. U.S. Patent No. 4,754,207 and further in view of Mongeau U.S. Patent No. 5,917,295.

Referring to claims 1, 2, 13 and 14, Schmitz et al. discloses a series type hybrid electric vehicle having two or more wheels and one or more electric motors and/or generators, but does not explicitly

describe that the at least one motor and/or generator is an adaptive electric machine in which two or more electromagnetic power circuits are sufficiently isolated to substantially eliminate electromagnetic and electrical interference between the circuits. Nonetheless, Heidelberg et al. discloses a rotary electric motor having an electromagnet with adjacent groups of electromagnets having different switching phases (electromagnetic power circuits) (see figure 1 and respective portions of the specifications). Heidelberg further discloses that the electric motor includes a stator (6) and rotor (4), wherein the stator comprises a plurality of stator core elements (12) being arranged in groups (22), being associated with a corresponding one of the phases (electromagnetic power circuits) of the electric motor (see Col. 2, lines 22-33). Additionally, Heidelberg et al. clearly describes each of the groups being structurally separated (see gap 40) and having magnetic material (see Col. 9, lines 20-32) magnetically isolated and separated from other groups (see figure 1 and Col. 2, lines 17-25). However, Heidelberg et al. does not explicitly describe having a controller which is used to control electrical flow in each group being independently controllable of each other phase, thereby establishing relative rotation between rotor and stator. Nevertheless, Mongeau disclose an improved motor drive system having a plurality of series connected H-bridges (see figures 1, 7 and respective portions of the specification), wherein each phase (15-17 or 122-124) of the motor is controlled independently of each other and

is believe to control the electric flow in one phase with a parameter different from that another phase.

Since Schmitz et al., Heidelberg et al. and Mongeau are in the same field of endeavor, the purpose disclosed by Heidelberg and Mongeau would have been recognized in the pertinent art of Schmitz et al.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have each phase controlled independently of each others phase as taught by Heidelberg et al. in combination to the controller as taught by Mongeau within the teaching of the series type hybrid electrical vehicle of Schmitz for the purpose/advantages that when each phase in the electric motor is independently controlled, there is a reduction in switching losses and the reconfiguration of each motor phase winding at various operating modes would optimize the speed of the motor at different loads (dynamic selection), increasing efficiency.

Even though Schmitz, Heidelberg and Mongeau are silent on the torque-to-weight ratio (20 Nm/kg), this design parameter is an obvious implementation in the structure of the motors being used. It is well known in the art wherein motors are being used on vehicle propulsion systems that the torque-to-weight ratio differ from one motor to another in accordance with the speed, voltage and/or other variables require to operate at desire efficiency.

It would have been an obvious matter of design choice to one of ordinary skill in the art to claim a specific torque-to-weight and

torque-to-volume ratio, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

As to claims 15 and 16, the method steps would have been obvious based on the product structure of claims 1, 2, 13 and 14 above. One of ordinary skill would have been motivated to propel a series type hybrid vehicle using the controller of Mongeau within the teaching of Heidelberg.

Referring to claims 3-5 and 8-10, Schmitz et al. discloses in figure 1, an internal combustion engine (ICE) 300 connected to an electric generator (310) arranged in a series hybrid configuration. It would have been obvious to also include a fuel cell arranged in a series hybrid configuration, since this is an additional source to produce electricity from external supplies of fuel and oxidant (i.e. Hydrogen as fuel and oxygen as oxidant).

As to claims 6, 7, 11 and 12, Schmitz et al. discloses a in figure 3, an electric motor 50 and 60, each having electromagnetic circuits (phases) being powered by its own power supply (U_B). In addition depicts an internal combustion engine (ICE) (300), a central controller (200) which controls the operation of the motors, the battery and the ICE and has a master control panel (fig 6) and a programmable logic controller (220) that will get the input from an onboard user interface (25) (see Fig. 6).

Response to Arguments

6. Applicant's arguments filed on 10/29/2007 have been fully considered but they are not persuasive.

It is believed that the prior art of record still reads on the claims as they have been presented.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation (TSM) to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). According to the Supreme Court, the TSM test is one of a number of valid rationales that could be used to determine obviousness. It is not the only rationale that may be relied upon to support a conclusion of obviousness (emphasis added). See *KSR International Co. v. Teleflex Inc.*, 550 U.S., 82 USPQ2d 1385 (2007). In this case all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

With regards to applicant's remarks (see page 6-7) that the applied references, alone or in combination, fails to show, describe,

teach or suggest a vehicle having a motor with electromagnetic power circuits with a stator with stator core elements in one group being structurally and electromagnetically separated or isolated from the stator core elements in each other group to substantially eliminate electromagnetic and electrical interferences is not persuasive. After carefully reviewing the Heidelberg ('207) reference, Heidelberg does disclose in col. 5, lines 35-42: "The individual electromagnets 12 have bases 32... ..Bases 32 do not meet at the boundary between each group 22 and the adjacent group 22, so that there is a disconnection of the magnetic circuit here." However, applicant has misinterpreted the word "here". After carefully reviewing figure 1 and 3, Heidelberg et al. depicts group (22), wherein each group contains at least five electromagnets (12) having a base (32), in which each base is electromagnetically connected to the other bases (32) of the remaining electromagnets in the same group (emphasis added), and there is a disconnection of the magnetic circuit here, but with another group (22) (emphasis added).

With respect to applicant's remarks (page 6, par. 2), that Heidelberg fails to show or describe a stator with stator core elements in one group being structurally separated from the stator core elements in each other groups is not persuasive. After carefully reviewing the Heidelberg ('207) reference, Heidelberg does show that each group (22) is structurally separated from the other groups (22) (see figure 1 and 3) gap (40) shows this separation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon Santana whose telephone number is (571) 272-2060. The examiner can normally be reached on Monday thru Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 X.37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Eduardo Colon-Santana
Patent Examiner
Art Unit 2837